CLAIMS

1. A pharmaceutical composition for the prevention and/or the treatment of Parkinson's disease and the concomitant symptom(s) thereof,
which comprises an adenosine A_1A_{2a}-receptor dual antagonist or a salt thereof as an active ingredient.

2. A pharmaceutical composition claimed in Claim 1, wherein the concomitant symptom(s) is(are) anxiety, depression and/or memory impairment.

3. A pharmaceutical composition claimed in Claim 1 or 2, wherein the adenosine A_1A_{2a}-receptor dual antagonist has an adenosine A_{2a}-receptor antagonizing action of not more than 100 nM in terms of IC_{50}.

4. A pharmaceutical composition claimed in Claim 3, wherein the adenosine A_1A_{2a}-receptor dual antagonist has an adenosine A_{2a}-receptor antagonizing action of not more than 50 nM in terms of IC_{50}.

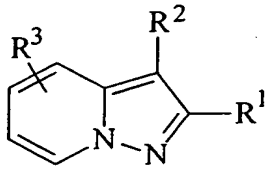
5. A pharmaceutical composition claimed in Claim 1 to 4, wherein the affinity for the adenosine A_1-receptor of the adenosine A_1A_{2a}-receptor dual antagonist is 0.25 to 40 times as high as that for the adenosine A_{2a}-receptor.

6. A pharmaceutical composition claimed in Claim 5, wherein the affinity for the adenosine A_1-receptor of the adenosine A_1A_{2a}-receptor dual antagonist is 8 to 40 times as high as that for the adenosine A_{2a}-receptor.

7. A pharmaceutical composition claimed in Claim 1 or 2, wherein the adenosine A_1A_{2a}-receptor dual antagonist is selected from the group consisting of adenine derivative, barbiturate derivative, benzimidazole derivative, benzo[1,2-c:5,4-c']dipyrazole derivative, benzo[b]furan derivative, benzo[g]pteridine-2,4-dione derivative, β-carboline derivative, dibenz[b,f]azepine derivative, flavone derivative, imidazo[1,2-a]pyrazine derivative, imidazo[4,5-b]pyridine derivative, imidazo[4,5-c]quinoline derivative, imidazo[4,5-e][1,4]diazepine-5,8-dione derivative, imidazo[4,5-f]quinazoline-7,9-dione derivative, imidazo[4,5-g]quinazoline-6,8-dione derivative, imidazo[1,2-a]quinoxaline derivative, imidazoline derivative, imidazotriazolopyrimidine derivative, pteridine-2,4-dione derivative, pyrazole derivative, pyrazolo[1,5-a]pyradine derivative, pyrazolo[1,5-a]pyridine derivative, pyrazolo[3,4-b]pyridine derivative, pyrazolo[3,4-d]pyrimidine derivative, pyrazolo[4,3-d]pyrimidine derivative, pyrazolo[4,3-c]quinoline derivative, pyrimidine derivative, pyrimido[4,5-b](tetrahydro)indole

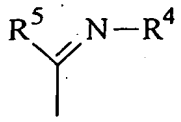
derivative derivative, pyrrolo[2,3-d]pyrimidine derivative, quinazoline derivative, quinoline derivative, thiazolo[3,2-a]pyrimidine derivative, thiazolo[2,3-b]quinazoline derivative, thiazolo[4,5-d]pyrimidine-5,7-dione derivative, thiazolo[5,4-d]pyrimidine-5,7-dione derivative, thiophene derivative, triazolo[3,2-a][2,7]naphthyridine derivative, triazolopurine derivative, [1,2,4]triazolo[4,3-b]pyridazine derivative, triazolo[1,5-a]pyrimidine derivative, triazolo[1,5-c]pyrimidine derivative, [1,2,4]triazolo[1,5-c]quinazoline derivative, [1,2,4]triazolo[4,3-a]quinoxaline derivative, triazolo[1,5-a]triazine derivative, xanthine derivative, mesoionic xanthine derivative.

8. A pharmaceutical composition claimed in Claim 7, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound selected from the pyrazolopyridine compounds of the general formula or a salt thereof:



[wherein R^1 is lower alkyl, aryl optionally having one or more suitable substituent(s) or a heterocyclic group;

R^2 is a group of the formula:



(wherein R^4 is a protected amino or hydroxy and R^5 is hydrogen or lower alkyl);

cyano;

a group of the formula:

$-A-R^6$

(wherein R^6 is acyl and A is lower aliphatic hydrocarbon group optionally having one or more suitable substituent(s));

amidated carboxy;

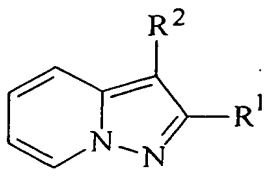
unsaturated heterocyclic group optionally having one or more suitable substituent(s);

amino; or

protected amino; and

R^3 is hydrogen, lower alkyl, lower alkoxy, or halogen] .

9. A pharmaceutical composition claimed in Claim 8, wherein the adenosine A_1A_{2a}-receptor dual antagonist is selected from the pyrazolopyridine compounds of the general formula:



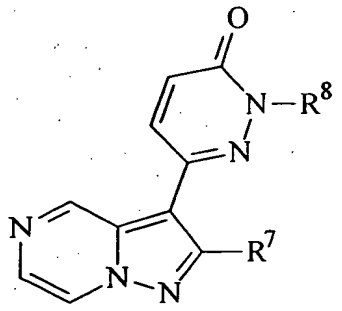
[wherein R^1 is aryl which may be substituted by halogen and R^2 is dihydropyridazinyl group having lower alkyl optionally substituted by an unsaturated 3~8-membered monocyclic heterocyclic group containing 1 or 2 sulfur atoms and 1~3 nitrogen atoms or acyl(lower)alkyl and oxo; dihydropyridazinyl group having cyclo(lower)alkyl substituted by acyl(lower)alkyl or acyl(lower)alkylidene and oxo ; or dihydropyridazinyl having cyclo(lower)alkenyl substituted by acyl(lower)alkyl or acyl(lower)alkylidene and oxo].

10. A pharmaceutical composition claimed in Claim 9, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound, in which
R^1 is phenyl or phenyl substituted by halogen, and
R^2 is 3-oxo-2,3-dihydropyridazinyl group having thiazolyl(lower)alkyl group or
3-oxo-2,3-dihydropyridazinyl group having lower alkyl.

11. A pharmaceutical composition claimed in Claim 10, wherein the adenosine A_1A_{2a}-receptor dual antagonist is 3-[2-(thiazol-2-ylmethyl)-3-oxo-2,3-dihydro-pyridazin-6-yl]-2-phenylpyrazolo[1,5-a]pyridine.

12. A pharmaceutical composition claimed in Claim 1 or 2, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound selected from the pyrazolopyrazine compounds of the following general

formula or a salt thereof:



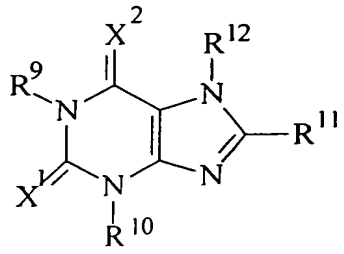
[wherein R^7 is aryl optionally having one or more suitable substituent(s); R^8 is hydrogen, lower alkyl, cyclo(lower)alkyl, lower alkyl substituted by cyclo(lower)alkyl, ar(lower)alkyl , a heterocyclic group, or lower alkyl substituted by heterocyclic group] and salts thereof.

13. A pharmaceutical composition claimed in Claim 12, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound, in which

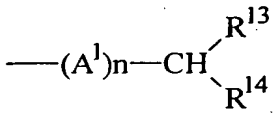
R^7 is phenyl or phenyl substituted by halogen, and

R^8 is lower alkyl or a heterocyclic group.

14. A pharmaceutical composition claimed in Claim 1 or 2, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound selected from the xanthine compounds of the general formula or a salt thereof:



[wherein R^9, R^{10} and R^{12} each is hydrogen, lower aliphatic hydrocarbon group optionally having one or more suitable substituent(s), higher alkyl optionally having one or more suitable substituent(s) or ar(lower)alkyl optionally having one or more suitable substituent(s); R^{11} is hydrogen; alicyclic, aryl, heterocyclic, alicyclic(lower)alkyl, ar(lower)alkyl or heterocyclic(lower)alkyl, each of which may have one or more suitable substituent(s); or a group of the formula:



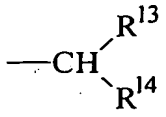
(wherein R^{13} and R^{14} each is an alicyclic group optionally having one or more suitable substituent(s) or aryl optionally having one or more suitable substituent(s); A^1 is lower alkylene; and n is 0 or 1); and X^1 and X^2 each is an oxygen atom or a sulfur atom]

and salts thereof.

15. A pharmaceutical composition claimed in Claim 14, wherein the adenosine A_1A_{2a}-receptor dual antagonist is a compound, in which

R^9 and R^{10} each is lower alkyl,

R^{11} is cyclo(C_3-C_8)alkyl which may have oxo; (C_7-C_{12})tricycloalkyl; or a group of the formula:



(wherein R^{13} and R^{14} each is cyclo(C_3-C_8)alkyl);

R^{12} is hydrogen, and

X^1 and X^2 each is an oxygen atom.

16. Use of an adenosine A_1A_{2a}-receptor dual antagonist for the manufacture of a pharmaceutical composition for the prevention and/or the treatment of Parkinson's disease and the concomitant symptom(s) thereof.

17. A method for the prevention and/or the treatment of Parkinson's disease and the concomitant symptom(s) thereof, which comprises administering an adenosine A_1A_{2a}-receptor dual antagonist to a patient suffering from Parkinson's disease and the concomitant symptom(s) thereof.

18. A pharmaceutical composition for the prevention and/or the treatment of Parkinson's disease and the concomitant symptom(s) thereof, which comprises a combination of 1 or more compound(s) selected from an adenosine A_1-receptor dual antagonist and 1 or more compound(s) selected from an adenosine A_{2a}-receptor antagonist, as active ingredients.